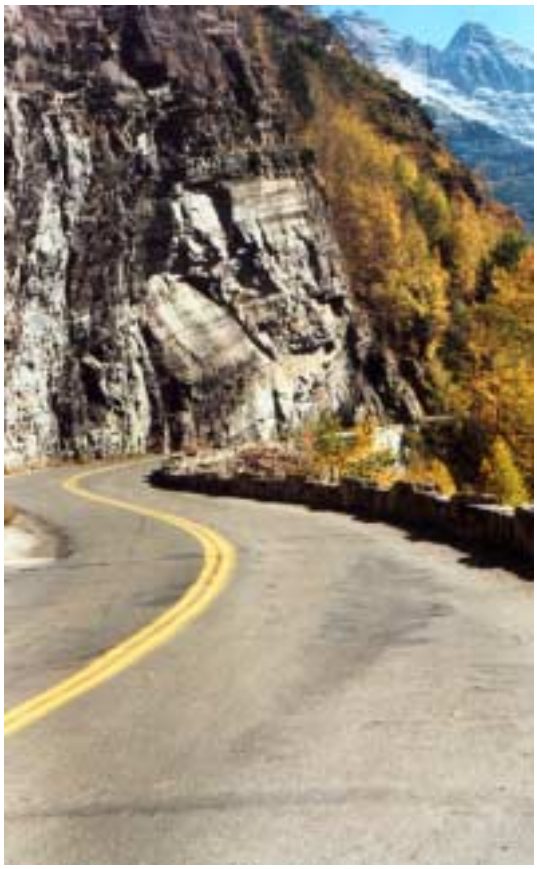
Going-to-the-Sun Road
Rehabilitation Plan/Draft Environmental Impact Statement

Summary



Glacier National Park

Waterton-Glacier International Peace Park
The World's First International Peace Park
A World Heritage Site

August 2002

SUMMARY

GOING-TO-THE-SUN ROAD

REHABILITATION PLAN/DRAFT ENVIRONMENTAL IMPACT STATEMENT

GLACIER NATIONAL PARK

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Introduction

In 1999, the National Park Service concluded that the Going-to-the-Sun Road would be rehabilitated to preserve a National Historic Landmark and premier visitor experience in Glacier National Park. The question and focus of this Rehabilitation Plan/Environmental Impact Statement is how best to conduct the Road rehabilitation while minimizing impacts on the cultural, natural, and socioeconomic resources. Studies and investigations have been conducted over the past 18 years on the condition of the Road. Engineering, socioeconomic, visitor use, cultural resource, and other studies completed in 2001 and 2002 have further established the need to rehabilitate the Road. From February 2000 to December 2001, a Citizens Advisory Committee was established to help guide these studies and advise the National Park Service on how best to accomplish rehabilitation. Public input and recommendations from the Citizens Advisory Committee have contributed greatly to the development of rehabilitation alternatives and mitigation measures to reduce impacts on the resources and region.

Capturing a scenic view in the 1930s

Purpose and Need for Road Rehabilitation

Completed in 1932, the Road is a National Historic Landmark defined by outstanding historic structural features and access to some of the most spectacular scenic landscapes in the United States. Today, the Road is in immediate need of repair to protect those characteristics for which the Road was designated a Historic Landmark and to maintain a world-class visitor experience. The Road is an integral component of the regional economy. Numerous tourist-related businesses are supported by visitors drawn from throughout the United States, Canada, and the world to visit Waterton-Glacier International Peace Park and enjoy the natural, cultural and scenic resources present along the Road.

Original construction of the Going-to-the-Sun Road

Construction of the Going-to-the-Sun Road was a monumental undertaking. The Road was first opened to public travel over Logan Pass in the fall of 1932. During its first year of full operation in 1933, about 40,000 vehicles traveled the Road. Currently about 475,000 vehicles annually travel the Road from June to October and 1.7 million visitors enjoy the Park each year.

Since the Road's original construction, traffic volume, avalanches, harsh weather conditions, and inadequate maintenance from a lack of funding and trained staff have all contributed to deterioration of the structural and historic features of the Road. Studies since 1984 by the Federal Highway Administration and a recently completed *Engineering Study* by Washington Infrastructure Services have evaluated in detail the condition of the Road and priorities for repair. These condition assessments indicate that the Road and its structures will continue to deteriorate unless corrective action is taken. If corrective actions are not taken, historic structures will be lost and adjacent environmental resources may be adversely affected. The risk of a catastrophic Road failure increases the longer repairs are delayed.

Rehabilitation is to be completed in a manner that accomplishes the following objectives:

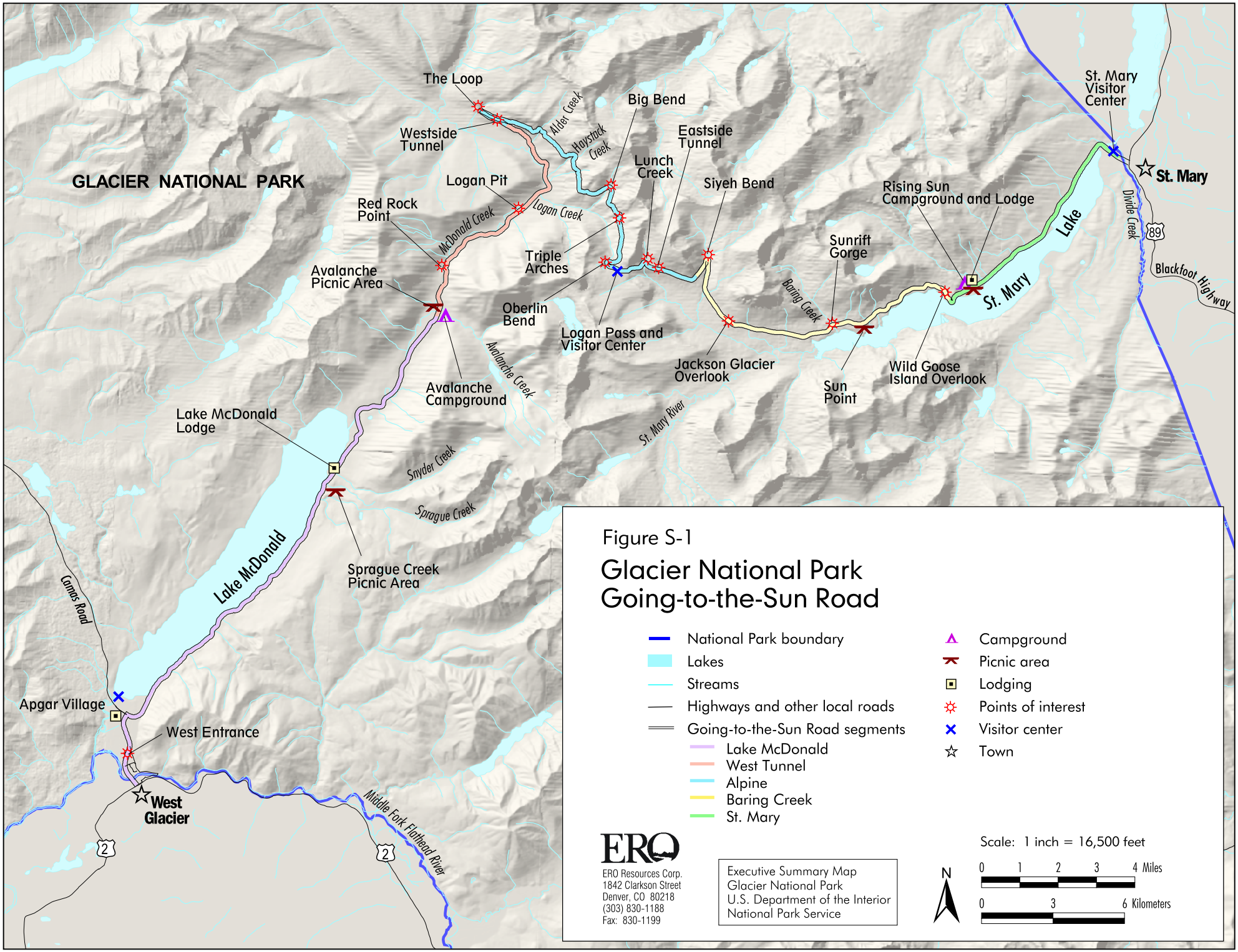
- Preserving its historic character, fabric, width, and significance
- Rehabilitating the Road to a quality condition in a cost-effective manner
- Minimizing effects on natural, cultural, and scenic resources
- Maintaining a world-class visitor experience
- Providing for visitor and employee safety
- Minimizing impacts to the local and regional economies

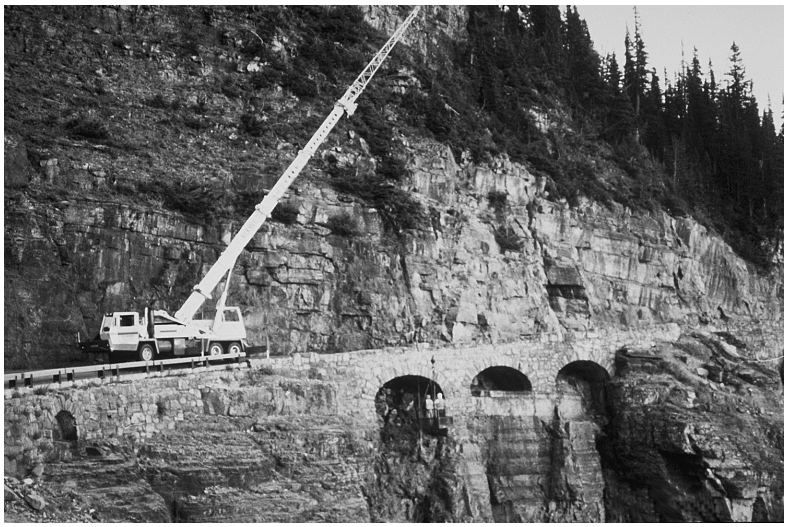
The entire 50-mile (80-kilometer) Going-to-the-Sun Road needs to be rehabilitated. In order to evaluate the Road's condition and develop feasible alternatives, the *Engineering Study* divided the Road into five segments, each with special characteristics and different rehabilitation requirements. Rehabilitation priorities by Road segment are listed in Table S-1 and shown in Figure S-1.

Table S-1. Rehabilitation priority by Road segment and milepost (MP).

Rehabilitation Work	Lake McDonald MP 0.0-16.2	West Tunnel MP 16.2-23.4	Alpine MP 23.4-34.2	Baring Creek MP 34.2-43.2	St. Mary MP 43.2-49.7
Drainage	5	2	1	4	3
Slope stability	5	3	1	2	4
Retaining walls, arches, and tunnels	4	2	1	3	5
Guardwalls	4	2	1	3	5
Roadway pavement	4	2	1	3	5

Note: 1 = highest priority; 5 = lowest priority.


GLACIER NATIONAL PARK
The Loop
Westside Tunnel
Alder Creek
Haystack Creek
Big Bend
Eastside Tunnel
Lunch Creek
Siyeh Bend
Logan Pit
Logan Creek
Red Rock Point
McDonald Creek
Triple Arches
Avalanche Picnic Area
Oberlin Bend
Logan Pass and Visitor Center
Avalanche Creek
Avalanche Campground
Lake McDonald Lodge
Snyder Creek
Sprague Creek
Sprague Creek Picnic Area
Lake McDonald
Camas Road
Apgar Village
West Entrance
West Glacier
Middle Fork Flathead River
Jackson Glacier Overlook
Baring Creek
Sunrift Gorge
Sun Point
St. Mary River
Wild Goose Island Overlook
Rising Sun Campground and Lodge
St. Mary
Lake
St. Mary Visitor Center
St. Mary
Divide Creek
89
Blackfoot Highway
2
2
Figure S-1
Glacier National Park
Going-to-the-Sun Road
National Park boundary
Lakes
Streams
Highways and other local roads
Going-to-the-Sun Road segments
Lake McDonald
West Tunnel
Alpine
Baring Creek
St. Mary
Campground
Picnic area
Lodging
Points of interest
Visitor center
Town
ERO
ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: 830-1199
Executive Summary Map
Glacier National Park
U.S. Department of the Interior
National Park Service
N
Scale: 1 inch = 16,500 feet
0 1 2 3 4 Miles
0 3 6 Kilometers



Repair work on Triple Arches

The most critical repair needs are located on the 11-mile alpine section of the Road where the terrain is steep, the Road is narrow, and there is little to no shoulder. Part of the difficulty in implementing needed repairs is that the majority of rehabilitation can only be conducted 4 to 6 months out of the year in the late spring, summer, and early fall. This construction season also coincides with the time that most visitors come to the Park. One of the challenges is to maintain visitor access, while implementing rehabilitation work. Also of great concern is the potential impact during rehabilitation to local and regional businesses and communities that rely on summer tourism. Thus, the rehabilitation alternatives considered the need to balance implementing needed repairs while preserving the Road's National Historic Landmark status and maintaining visitor use during construction.

Serious safety concerns have surfaced due to the condition of the Road. Deterioration has resulted in drainage problems, cracked and uneven road surfaces, missing or low guardwalls, and damaged retaining walls. Pedestrian crossings and traffic circulation at pullouts, overlooks, and parking areas are often deficient, which puts motorists, bicyclists, and pedestrians at risk. Many of the pullouts and parking areas adjacent to the Road have likewise deteriorated or were not designed for today's larger vehicles. Overuse at some pullouts has resulted in erosion, vegetation trampling, soil compaction, and development of informal social trails. A lack of interpretive exhibits, orientation information, and signs often leads to visitor confusion and congestion at popular sites.

Alternatives Considered

In 1999, federal legislation was passed to reallocate $1 million of transportation funds to conduct an *Engineering Study* and a *Socioeconomic Study* that included visitor use and business surveys. Establishment of a Citizens Advisory Committee also was authorized by the legislation. In addition, a *Transportation and Visitor Use Study* for the Park and cultural resource inventories of the Road were conducted to assist in the development of alternatives.

The development of alternatives was a multi-disciplined effort spanning several years and involving input from the public, a Citizens Advisory Committee, the Federal Highway Administration, the National Park Service, and private consultants. The National Park Service began seeking public input on the proposed project in June 2000 with a notice in the *Federal Register* and a newsletter sent to interested citizens. In December 2000, the National Park Service and Citizens Advisory Committee conducted a series of five open houses in Kalispell, Missoula, Great Falls, and

"Viewed as an engineering feat alone it is a remarkable example of American road building, but when we add to this the gorgeous panorama that unrolls before the beholder as he passes up and up until he feels that he may almost literally pick cotton out of the clouds that surround him…"

Senator Burton K. Wheeler of Montana at the dedication of the Going-to-the-Sun Highway, July 15, 1933

Browning, Montana and one in Lethbridge, Alberta, Canada to discuss the issues and obtain public comments and concerns.


West tunnel in the 1930s

The Citizens Advisory Committee, which began its meetings on Road rehabilitation in February 2000, was composed of: a diverse group of local business leaders from the east and west sides of the Park; state and local government officials; representatives from the Blackfeet Tribe and the Confederated Salish and Kootenai Tribes; tourism representatives from Montana and Canada; and local and national experts on the environment, economics, historic preservation, and highway engineering. Following almost 2 years of discussion, including numerous beneficial comments from the public, and review of studies and reports, the Citizen's Advisory Committee submitted recommendations to the National Park Service including rehabilitation alternatives to consider in an Environmental Impact Statement. The preferred alternative and other alternatives that were considered are briefly described below and compared in Table S-2.

Preferred Alternative (Shared Use)

The preferred alternative selected by the National Park Service is referred to as the Shared Use with Extended Rehabilitation Season Alternative (Shared Use). The Shared Use Alternative was the Citizen's Advisory Committee's recommended alternative. Rehabilitation of the Road under this alternative would be completed over 7 to 8 years. The cost to implement proposed Road rehabilitation and visitor use improvements and mitigation for the preferred alternative is estimated to range from $140 to $170 million. This alternative seeks to implement road repairs while maintaining visitor use and access to the Going-to-the-Sun Road similar to current conditions. The National Park Service concluded that the Shared Use Alternative meets the project objectives and provides the best overall balance in addressing needed Road rehabilitation, protecting and preserving historic, scenic, and natural resources, while allowing continued visitor access and minimizing impacts to local businesses.

Under this alternative, roadwork would be conducted from spring to fall with the most extensive work conducted during the shoulder seasons prior to Independence Day (July 4) and after September 15. During the shoulder season, when visitation is typically lower, traffic would be suspended within discrete work zones, while Logan Pass and the remainder of the Road remain open (at least 40 miles; 65 kilometers). Between Independence Day and September 15, a maximum cumulative traffic delay of 30-minutes over the length of the Road would occur during peak visitor hours, similar to the traffic delays used for the last 3 years for roadwork. Longer delays would be used during the early morning, evening, and at night (Table S-2).

Guardrail damage, June 2002

Table S-2. Comparison of alternative features.

Action	Alternative 1 Repair as Needed (No Action)	Alternative 2 Priority Rehabilitation	Alternative 3 Shared Use (Preferred)	Alternative 4 Accelerated Completion
SCHEDULE				
Road rehabilitation duration	50 years	20 years	7 to 8 years	6 to 8 years
FUNDING (millions of dollars)				
Road rehabilitation cost	$98 - $117	$90 - $107	$81 - $108	$72 - $84
Visitor use improvement cost	0	$1.5	$10	$10
Total transit system cost over rehabilitation period	0	$8.7	$5.5	$8.2
Visitor development mitigation	0	0	$17	$17
TOTAL COST • 2001 dollars • Inflation adjusted (4%/year)	 $98 - $117 $328 - $394	 $100 - $117 $157 - $186	 $113 – 140 $140 - $170	 $107- $119 $126 - $144
Yearly funding required	$1 - $2	$5	$10 - $23	$9 - $20
Annual road operation and maintenance cost following rehabilitation	$0.56	$1.5 - $1.9	$1.5 - $1.9	$1.5 - $1.9
TRAFFIC MANAGEMENT ON THE GOING-TO-THE-SUN ROAD DURING REHABILITATION				
Up to 30-minute delays, everyday, all season	Yes	Yes	Yes	Yes
Up to 1-hour delays	No	No	Mornings[1] and evenings[2] (Monday through Thursday)	No
Up to 2-hour delays	No	Nights[3] (Sunday through Thursday)	No	No
Up to 4-hour delays	No	Nights[3] (Monday through Thursday) after third Monday in September	Nights[3] (Monday through Thursday)	No
Traffic suspensions on road segments under rehabilitation	No	No	Prior to Independence Day and after mid-September	Monday through Thursday, all season
Access to Logan Pass	Yes	Yes	Yes	Yes

[1] Mornings = 8 A.M. to 10 A.M.
[2] Evenings = 3 P.M. to 8 P.M.
[3] Nights = 8 P.M. to 8 A.M.

Action	Alternative 1 Repair as Needed (No Action)	Alternative 2 Priority Rehabilitation	Alternative 3 Shared Use (Preferred)	Alternative 4 Accelerated Completion
TRANSIT SERVICE DURING REHABILITATION				
Schedule	Existing operation, 2½ to 5 hour intervals	Existing operation, 2½ to 5 hour intervals plus destination transit	60-minute intervals	30-minute intervals
Vehicles — vans or buses	3 (2 active; 1 backup)	5 (4 active; 1 backup)	7 (6 active; 1 backup)	14 (12 active; 2 backups)
New transit staging areas	No, existing parking areas would be used	Same as Alternative 1	Staging area parking at Apgar (25 to 30 spaces) and St. Mary (10 to 15 spaces)	Staging area parking at Apgar (55 to 60 spaces) and St. Mary (25 to 30 spaces)
Shoulder season service	No	No	Yes	Yes
OPERATIONS AND MAINTENANCE				
Increased annual funding for operations and maintenance	No	Yes	Yes	Yes
VISITOR USE IMPROVEMENTS				
Parking and Pullouts				
Move, add, or reconfigure parking and pullouts to improve safety and traffic flow	No	No	Yes	Yes
Remove or formalize social pullouts	No	Yes	Yes	Yes
Add slow-moving vehicle pullouts	No	Yes	Yes	Yes
Vegetation Management				
Vista and roadside vegetation clearing	Yes	Yes	Yes	Yes
Trail Improvements				
Rehabilitate existing roadside trails and add new short trail segments	No	No	Yes	Yes
Toilets				
Rehabilitate existing vault toilets	No	Yes	Yes	Yes
Replace portable toilets with vault toilets and add new toilets	No	Yes	Yes	Yes

Action	Alternative 1 Repair as Needed (No Action)	Alternative 2 Priority Rehabilitation	Alternative 3 Shared Use (Preferred)	Alternative 4 Accelerated Completion
Visitor Orientation, Information, and Interpretation				
Install orientation and information facilities	No	No	Yes	Yes
Provide interpretive wayside exhibits along the Road	No	No	Yes	Yes
Develop Intelligent Transportation System, update roadside signage, and provide communication material to visitors	No	No	Yes	Yes
Activate public information program to aid visitors and local businesses	Yes	Yes	Yes	Yes
Implement visitor use mitigation measures	No	No	Yes	Yes

At the same time Road rehabilitation is occurring, the National Park Service proposes to include improvements and upgrades to visitor use facilities located adjacent to the Road within the visitor service zone. Visitor use improvements for this alternative include: improved vehicle parking and pedestrian circulation at existing pullouts; the addition of a new parking area and connecting trail; selective vegetation clearing to restore scenic vistas; rehabilitation of existing and the addition of new toilets; construction of five new short pullouts for slow-moving vehicles; construction of a few new short roadside trails and rehabilitation of informal trails; the designation of transit stops at popular locations along the Road; and improved information, orientation and interpretive information for visitors.

To ensure that the Road remains in excellent condition following this rehabilitation effort, the Park is seeking funding for operations and maintenance of the Road. In the past, the annual operating budget for Road maintenance has not been adequate to keep up with necessary Road repairs. Sufficient annual funding is needed to protect the investment in proposed Road rehabilitation and visitor use improvements.

Due to the potential impacts to visitors, businesses and tourism from the Going-to-the-Sun Road rehabilitation, the National Park Service is proposing several visitor development strategies to offset impacts. The Park would work with public, commercial, private, non-profit, and tribal organizations to create proactive public information, special events and gatherings, and marketing programs before and during Road repairs. The existing transit fleet would be expanded to seven vehicles to provide visitors with an alternative method of traveling the Road and stopping at popular destinations. Additionally, the Park is seeking funding to construct the West Side Discovery Center near Apgar, which would provide a quality visitor center and museum, and replace an existing small visitor contact station. Rehabilitation of the St. Mary Visitor Center also is proposed to improve the quality of exhibits and interpretive information. To improve the quality of communications and timeliness of information to Park visitors, the National Park Service proposes to implement an Intelligent Transportation System, which includes a computerized network linking information sources and providing real-time information to visitors on

road conditions, traffic delays, weather, transit schedules, and interpretive information. It would also help in accomplishing maintenance activities such as snowplowing and opening the Road each spring.

Priority Rehabilitation Alternative

The Priority Rehabilitation Alternative allows for planning and design ahead of time, rather than in response to roadway failure or emergencies. Road rehabilitation would be implemented over 20 years, but this would still allow deterioration of historic, natural, and scenic resources. This alternative would address current structural deficiencies in the Road with only a few improvements to visitor use facilities and no visitor development mitigation funding. The estimated cost is $157 to $186 million.

Accelerated Completion Alternative

The objective of the Accelerated Completion Alternative is to complete rehabilitation of the Road as quickly as possible by using isolated traffic suspensions (May through October) Monday through Thursday and maintain visitor access on the weekends from Friday to Sunday. This alternative would implement Road repairs over 6 to 8 years at a cost of $126 to $144 million. The rapid completion of rehabilitation would minimize further Road deterioration and damage to historic, cultural, and environmental resources. Although the Accelerated Completion Alternative would reduce the period of construction, it would require restriction in visitor access during the week. This alternative includes the same visitor use improvements and visitor development mitigation funding as the preferred alternative.

Repair as Needed Alternative (No Action)

The Repair as Needed Alternative or No Action Alternative represents baseline existing conditions. Under this alternative, rehabilitation work on the Road would continue as funding allows, but work would be limited to critical and emergency repairs. This alternative focuses only on rehabilitating the Road. No funds would be available for visitor use or mitigation of construction activities. Road rehabilitation is estimated to take about 50 years at current levels of funding and cost between $328 and $394 million. During that time, it is expected that further deterioration of the Road would occur and significant historic resources would be lost. This alternative would not meet National Park Service goals and objectives to correct safety issues, protect resources, and maintain a world-class visitor experience.

Potential Environmental Effects

For each of the four alternatives considered, an evaluation was made of the potential effects to socioeconomic, cultural, and natural resources from proposed Road rehabilitation. The analysis of impacts was based on a variety of factors including previous studies, surveys of Park visitors, economic modeling, impacts from similar projects, information provided by the public and the Citizen's Advisory Committee, and the professional knowledge and experience of the National Park Service, Federal Highway Administration, and various consulting firms. A summary of impacts for each resource is provided below.

Cultural Resources

The Going-to-the-Sun Road is one of the most spectacular and significant linear cultural resources in the United States. The Road provides access to exceptional scenery, but is equally famous for the careful craftsmanship and design features that were required to carve the Road into the steep mountainside. The Road's narrow alignment hugs lakeshores, mountain streams, and massive cliffs, and its design reflects a strong sensitivity to these dramatic natural features. The masonry features along the Road—including guardwalls, retaining walls, bridges, and culvert headwalls—are vital in defining the Road's historic, visual, and engineering character. Most of these structures were designed to harmonize with the natural setting by using native materials and by blending with the landform as much as possible.

Clearing the Road in June 2002
Hungry Horse News Online, June 27, 2002

The construction of the Going-to-the-Sun Road marked a dramatic shift in the patterns of visitor use in Glacier National Park. The completion of the Road through the heart of the Park encouraged the use of private automobiles as the means to see the Park. Since the entire Road opened to the public in 1932, driving the Road has been one of the primary ways that visitors see and experience the Park. The extraordinary qualities of the Road have made it one of the principle attractions for Glacier visitors, and it has become perhaps the most noted highway in the entire National Park system.

The historic significance of the Road has been recognized by its listing in the National Register of Historic Places in 1983; its designation as a National Historic Civil Engineering Landmark by the American Society of Civil Engineers in 1985; its documentation by the Historic American Engineering Record in 1990; and its designation as a National Historic Landmark in 1997. The significance of the Road is exemplified by the National Historic Landmark designation, for which only two roads in the United States have been so designated. National Historic Landmarks are designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States.

The National Historic Landmark designation, the most recent of these recognitions, encompassed the 48.7-mile portion of the Road from the foot of Lake McDonald to St. Mary. The nomination describes and analyzes the Road's contributing resources within the parameters of five categories: spatial organization, circulation, topography, vegetation, and structures. The nomination lists fourteen principle structures as contributing to its significance. In addition to the Road itself, these include features such as bridges, tunnels, a horse trail underpass, and culverts. Retaining walls and guardwalls also are included in the National Historic Landmark designation. Currently there are about 2.3 miles of historic retaining walls, most of which are contributing to the significance of the Road. There also are about 7 miles of guardwalls built between 1922 and 1937, of which over 5 miles still maintain their historic integrity. A recent comprehensive historic inventory has recorded over 1,300 individual structural features along the Road. Preservation and rehabilitation of these historic features is a key component of proposed rehabilitation.

The National Historic Preservation Act of 1996 requires Glacier National Park to minimize harm to the National Historic Landmark designated Road. The Secretary of Interior's *Standards for the Treatment of Historic Properties* provide direction for the Park in promoting responsible preservation practices during rehabilitation. Standards particularly relevant to Road rehabilitation include:

- The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features

"The Going-to-the-Sun Road possesses extraordinary integrity to the period of its construction…[the Road] provides nearly the same experience for visitors that it did during the historic period."

National Historic Landmark Nomination

and spaces that characterize a property shall be avoided.

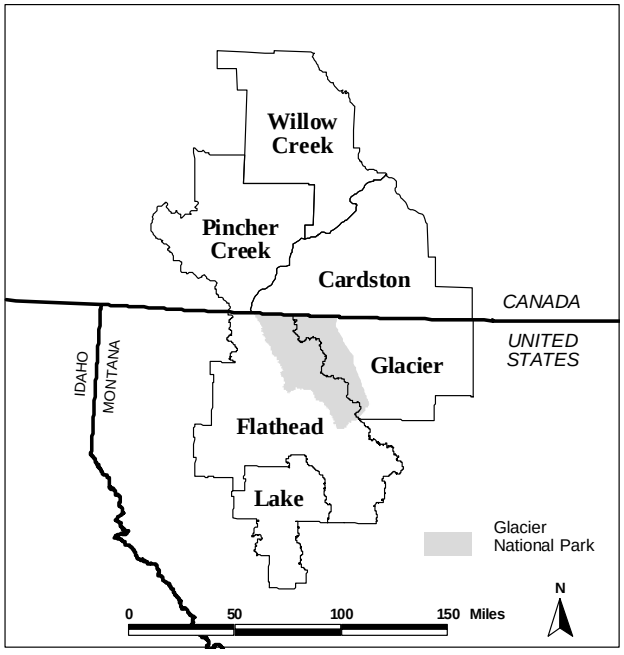
- Most properties change over time. Those changes that have acquired historic significance in their own right shall be retained and preserved.
- Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
- Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities, and where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

The alternatives for Road rehabilitation considered the historic designations and the Secretary of the Interior's *Standards for the Treatment of Historic Properties* in the development of measures to protect and repair existing historic cultural resources. All of the alternatives would adhere to these standards. However, because of the different duration for rehabilitation, some alternatives provide better protection of cultural resources. The Repair as Needed Alternative would require 50 years to complete rehabilitation and during that time, it is likely that many of the existing historic features would continue to deteriorate or would be permanently lost. The preservation of historic resources would be somewhat better under the Priority Rehabilitation Alternative; however, further deterioration and damage to historic features such as guardwalls and retaining walls is expected to continue if rehabilitation is extended over 20 years. The Shared Use (preferred) and Accelerated Completion Alternatives would complete rehabilitation work in less than 8 years and, thus, provide the best opportunity to preserve the historic features before further significant deterioration occurs.

Socioeconomic Resources

Visitor Use and Expenditures

A change in the number of visitors to Glacier National Park during rehabilitation is expected. Responses from visitor use surveys conducted in 2000 indicate that a portion of Park visitors would shorten their visit or not come if the rehabilitation effort limits access or results in substantial delays. The number of visitors that indicate they would change their travel plans to the Park varies both by visitor type (day visitors versus those staying overnight) and the nature of the traffic interruption. Survey responses indicate visitors are likely to be more sensitive to traffic suspensions than to relatively short delays. Baseline projections of Park visitation without rehabilitation indicate an average annual growth rate of 0.6 percent from 2001 to 2006, then remaining constant to 2020. The study area for the evaluation of socioeconomic impacts includes Flathead, Glacier, and Lake counties in Montana and the Willow Creek, Pincher Creek, and Cardston municipal sub-districts in Alberta, Canada.



Economic study area

Under the Repair as Needed Alternative (No Action), annual Park visitation is expected to be about 1.9

million by the year 2020. If current visitation trends continue over the 50-year rehabilitation period for this alternative, annual direct and secondary visitor expenditures for Flathead, Glacier, and Lake counties in Montana would be about $126 million. Projections in visitor expenditures for southwest Alberta would be $29 million. Baseline visitor expenditures are estimated to support 2,600 jobs in the Montana study area and 600 jobs in southwest Alberta. Although the Repair as Needed Alternative represents the socioeconomic baseline for current Road maintenance and repair activity, it is possible that in the absence of timely rehabilitation of the Road, the Road will suffer one or more catastrophic failures during the 50-year period it would take to repair the Road. If a segment of the Road should fail, access to Logan Pass (and passage across the Park) could be cut off altogether from at least one direction for an indeterminate period. In such an event, impacts on visitation would be larger than the estimated effects under any of the other alternatives.

Implementation of the Priority Rehabilitation Alternative, which would require 20 years to repair the Road, is projected to reduce annual visitation by about 5 percent or 87,000 visitors (Table S-3). This would result in an annual reduction in visitor expenditures of about $5.2 million and a decrease of about 160 direct and indirect jobs.

Table S-3. Average annual change in visitation and employment during Road rehabilitation for each alternative.

Alternative	Percentage Change in Number of Visitors	Number of Visitors	Change in Visitors	Visitation-Related Employment	Change in Employment
Repair as Needed (Baseline)	NA	1,868,000	0	3,235	0
Priority Rehabilitation	-5%	1,781,000	-87,000	3,075	-160
Shared Use (Preferred)	-7%	1,736,000	-132,000	2,990	-245
Accelerated Completion	-15%	1,588,000	-280,000	2,654	-581

Under the Shared Use Alternative (preferred), visitation during rehabilitation is estimated to decrease 7 percent or 132,000 visitors annually over the 7- to 8-year construction period. Visitor-related direct spending is estimated to decrease by about $8 million annually for the Shared Use Alternative (preferred) and the number of direct and indirect jobs would decrease by 245. This is a decrease of about 9 percent in annual visitor expenditures compared to the baseline. Implementation of visitor use improvements and mitigation measures under this alternative helps minimize the impact to visitation during rehabilitation.

The Accelerated Completion Alternative would complete rehabilitation in 6 to 8 years, but would result in the largest decrease in visitors because of traffic suspensions during weekdays. A 15 percent reduction in visitors, or about 280,000 fewer annual visitors, would visit the Park under this alternative. Direct visitor expenditures would decrease about $17 million and direct and secondary jobs would decrease by 581 annually.

Construction Expenditures

An increase in construction-related expenditures and associated jobs would occur during rehabilitation for all but the Repair as Needed Alternative. Construction expenditures include materials, equipment, labor, and engineering services. It is assumed that about one-half of new jobs would be hired locally and the remaining would be filled by non-local workers. Annual expenditures vary with the intensity of construction as shown in Table S-4. For all alternatives, about 65 percent of the construction expenditures within the Montana study area would be in Flathead County, 33 percent in Glacier County, and about 2 percent in Lake County. The State of Montana also would benefit from direct and secondary output from construction spending for all of the alternatives.

Table S-4. Construction expenditures and new jobs.

Alternative	Annual Construction Expenditures (millions)	Direct New Jobs
Repair as Needed (Baseline) (2004 – 2053)	$1 to 2	30
Priority Rehabilitation (2004 – 2023	$5	40
Shared Use (Preferred) (2004 – 2011)	$10 to $23	70 to 150
Accelerated Completion (2004 – 2010)	$9 to $20	60 to 150

Net Economic Effects

Net direct and indirect impacts on the study area economy are calculated by combining the anticipated reduction in tourism-related spending with the expected increases in construction spending (Table S-5). The net annual economic effects on study area output are smallest under the Shared Use Alternative (preferred), averaging about $4.3 million per year. The net impact for the Priority Rehabilitation Alternative is slightly greater at $5 million per year, and the greatest impact is with the Accelerated Completion Alternative with a decrease in economic output of about $20 million per year.

Table S-5. Summary and comparison of average annual direct and indirect effects of Road rehabilitation alternatives on study area economic output (2001 dollars).

Economic Sector	Repair as Needed (Baseline)	Priority Rehabilitation	Shared Use (Preferred)	Accelerated Completion
Tourism-related economic output	$173,000,000	$165,290,000	$161,430,000	$146,126,000
Change from the baseline	0	- $7,710,000	- $11,570,000	- $26,874,000
Construction-related economic output	$2,600,000	$5,320,000	$9,860,000	$9,420,000
Change from the baseline	0	+ $2,720,000	+ $7,260,000	+ $6,820,000
Net Annual Total Impact	**$175,600,000**	**- $4,990,000**	**- $4,310,000**	**- $20,054,000**

It is important to recognize that the effects on visitation and construction do not exactly offset one another. Different businesses are affected by changes in spending and an economic stimulus to the local construction sector does not necessarily reduce the impact on local tourism-related business. In addition, these values represent the annual effects, which would extend over the different rehabilitation periods for each alternative. Economic effects are estimated to be greatest under the Accelerated Completion Alternative. This is due primarily to traffic suspensions four days of the week and the estimated reduction in visitors compared to the other alternatives.

Future adverse impacts on visitation and the economy are possible if segments of the Road fail. The timing and magnitude of these impacts cannot be projected, but the Repair as Needed and Priority Rehabilitation Alternatives have the greatest potential for adverse impacts because of the extended period for rehabilitation. For all alternatives, Road rehabilitation would continue throughout the Lewis & Clark Bicentennial Commemoration in 2005 and 2006. Potential increases in Park visitation during this period may partially offset rehabilitation-related impacts on visitation.

Weeping wall in the 1950s

From a broader perspective, it is estimated that the annual tourism-related economy in the study area is about $250 to $300 million, while total economic output across all sectors is about $5 billion. Consequently, the estimated impact from changes in visitation range from about a 2 percent reduction in tourism-related economic activity in the study area for the Priority Rehabilitation Alternative to about 3 percent for the Shared Use Alternative (preferred), to about a 6 percent reduction for the Accelerated Completion Alternative. Relative to the size of the local economy, all of the alternatives would have a modest effect on the economy as a whole.

Natural Resources

Glacier National Park supports some of the most biologically rich and scenic resources in the western United States. In fact, because of the Park's biological diversity and significance, it has been designated as a Biosphere Reserve and a World Heritage Site. Natural resources are managed in accordance with National Park Service policy to maintain the components and processes of the natural ecosystems, including the natural abundance, diversity, and ecological integrity of the plant and animal species native to those ecosystems.

Potential impacts to natural resources from rehabilitation of the Road are similar for the four alternatives because each of the alternatives would maintain the existing road width and alignment and use the same construction techniques. However, the delay in implementing Road rehabilitation under the Repair as Needed and Priority Rehabilitation alternatives would allow existing damage to soil, vegetation, and water resources from erosion and poor drainage to continue. For the Shared Use (preferred) and Accelerated Completion Alternatives, ground-disturbing activities would occur from implementation of additional visitor use improvements, including new pullouts, short trails, and a new transit parking area located near Apgar. The Shared Use Alternative (preferred) would result in a long-term new disturbance to about 5.5 acres (2.3 hectares) of land and the Accelerated Completion Alternative would impact about 7.5 acres (3.0 hectares) of land. All new visitor use improvements would occur within the existing visitor service zone adjacent to the Road.

Rehabilitation of the Road would be conducted primarily within the existing roadway prism, which includes the existing pavement and adjacent fill and cut slopes created by original Road construction. As a result, substantial areas of new disturbance are not anticipated. Construction-related disturbance within the Road corridor includes disturbance to soils and native vegetation. Removal of mature trees is expected to be minimal, but any trees that pose a safety hazard would be removed. Wetlands would be avoided to the extent possible and where temporary impacts occur, wetlands would be restored to maintain their original functions and value. Most of the soil and vegetation disturbances would be temporary and, for all alternatives, extensive reclamation and revegetation measures would be implemented following rehabilitation of each Road segment.

The Going-to-the-Sun Road parallels several important water resources including Lake McDonald, St. Mary Lake, McDonald Creek and other streams that support fish and aquatic life. Ground-disturbing activities also have the potential to impact water and aquatic resources from erosion and sediment transport. Direct disturbances to water features are expected to be limited to bridge, culvert, and drainage repairs. While these activities may result in short-term disturbances to water resources, proposed drainage improvements are expected to result in a long-term beneficial effect to water and aquatic resources. Implementation of erosion and sediment control measures during rehabilitation would be used to protect water resources, as well as soil and vegetation for all alternatives. Provisions for fish passage in drainages also would be incorporated into rehabilitation.

McDonald Creek

Glacier National Park supports over 300 species of wildlife, many of which are found near the Going-to-the-Sun Road. Proposed rehabilitation for all alternatives and visitor use improvements for the Shared Use and Accelerated Completion Alternatives would result in a minor loss of wildlife habitat, but construction-related noise, lighting, and human activity may displace some wildlife activity near work zones. Proposed rehabilitation could create additional habitat fragmentation and may reduce the connectivity for wildlife movement. Road improvements would not affect design speeds or posted speed limits, so the potential for wildlife/vehicle collisions would not change.

The Park provides habitat for five federally listed threatened and endangered species—bald eagle, grizzly bear, gray wolf, lynx, and bull trout. Direct impact to habitat for these species is expected to be minor for all of the alternatives. Construction activities near bald eagle territories at Lake McDonald and St. Mary may disturb bald eagles; therefore, roadwork near Lake McDonald would be restricted from March 1 to May 15, and near St. Mary, restrictions would extend to June 15. Construction activity could temporarily displace grizzly bears near the Road, particularly where night construction occurs. Gray wolf use near the Road is limited, but construction disturbance could deter their activity near work zones. Although lynx are present in the Park, their distribution and abundance are not known. Proposed roadwork would not create additional barriers to lynx movement, but temporary disturbance during construction may affect their activity near the Road. Bull trout are found on the east and west sides of the Continental Divide. The potential introduction of sediment into streams may temporarily affect bull trout, but impacts are expected to be minor. There are no federally listed plant species in the Park.

There are 63 wildlife and aquatic species and 64 plant species of concern to the state present in Glacier National Park. Rocky Mountain bighorn sheep and mountain goats between The Loop and Siyeh Bend may be affected by construction-related disturbance, but these species have historically acclimated to traffic and human activity. Several golden eagle nests are present near the Road, but they also have been tolerant of other construction projects on the Road. Harlequin duck breeding habitat is found on McDonald Creek and other drainages. Use of Logan Pit as

Mountain goat

a staging area and later as an oversized vehicle turnaround under the Shared Use (preferred) and Accelerated Completion Alternatives could affect harlequin duck breeding and brood rearing. Wolverine is a wide-ranging species that may be susceptible to night construction and human activity. For other species of concern, only negligible to minor effects are anticipated.

Potential impacts to air quality and visibility would be minor and temporary for all alternatives. Only a short-term increase in construction vehicle emissions and dust is anticipated. A temporary local increase in air pollutants would not result in exceedances of applicable air quality standards.

Road rehabilitation would result in the temporary introduction of disturbances to the visual quality of the Road from equipment, traffic, material storage, and construction activity. Over the long term, all of the alternatives would improve and restore the scenic quality and character of the Road as damaged historic features are rehabilitated, drainage deficiencies corrected, and eroding slopes revegetated. The Shared Use (preferred) and Accelerated Completion Alternatives would best restore the scenic quality of the Road because improvements would be implemented before significant new deterioration would occur.

Each of the alternatives would introduce additional noise into the environment from construction equipment, machinery, and traffic. This would temporarily impact the natural quiet typically present in the Park and may affect the quality of the visitor experience and some wildlife. The significance of the impacts would be minimal because work would be conducted within the roadway where current traffic volumes are often high during the peak visitor season. The introduction of artificial light for night work would affect the night sky and possibly wildlife and visitor enjoyment near these work zones; however, night work would be limited primarily to low elevation sites and would be used selectively for specific rehabilitation tasks.

There would be no direct disturbance to proposed wilderness or Wild and Scenic Rivers in the Park. Noise from construction activities may carry into proposed wilderness areas, but this would be a short-term effect. No impact to the values for which the Middle Fork of the Flathead River was designated Wild and Scenic would occur for any of the alternatives.

Conclusion

Year 2010 will mark the 100th anniversary of the establishment of Glacier National Park. The goal of the NPS is to have the majority of the rehabilitation on the Going-to-the-Sun Road and associated visitor use improvements and mitigation measures completed by the Park's Centennial celebration.

The National Park Service is committed to making the final decision for the preservation and rehabilitation of the Going-to-the-Sun Road through the continuation of the public process already begun and the previous efforts of the Advisory Committee and others who helped develop this plan and EIS. We encourage continued public discussion and comment on this Rehabilitation Plan/Draft Environmental Impact Statement so that the National Park Service may ultimately fund and implement solutions that will preserve the Going-to-the-Sun Road for future generations.

Going-to-the-Sun Mountain